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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/577,007 05/24/00 FUJIOKA

K 829-551

EXAMINER

MM91/1107

NIXON & VANDERHYE PC
8TH FLOOR
1100 NORTH GLEBE ROAD
ARLINGTON VA 22201-4714

SCHECHTER, A

ART UNIT

PAPER NUMBER

2871

DATE MAILED:

11/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/577,007

Applicant(s)

FUJIOKA ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 11 and 14 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Liquid crystal display device having electrodes outside the display area which adsorb ionic impurities from the liquid crystal"

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 10, 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Mitsui et al.*, U.S. Patent No. 5,408,345 in view of *Kikuchi et al.*, Japanese Patent Document 5-323336.

Mitsui discloses [see Figs. 4-6, for example] a liquid crystal display device comprising a pair of substrates [31, 45], a liquid crystal layer [49], switching elements [40], gate and source lines [32, 39], interlayer film [42], and pixels [38] over the gate/source lines. Further, it discloses that the pixels overlap the gate or signal lines, that the pixel electrodes are reflective, and that the interlayer film is organic. *Mitsui* does not disclose an electrode pattern for adsorbing an ionic impurity on the interlayer insulating film in the surrounding region.

However, it would have been obvious for one of ordinary skill in the art to provide such an electrode pattern, as taught by *Kikuchi*. *Kikuchi* teaches and motivates [see abstract and Figs. 1, 2, 9 for example] forming an electrode pattern in the surrounding (non-display) region, which when supplied with a voltage acts to trap ionic impurities; this accomplishes the desirable goal of preventing an uneven display. The electrode is inward of the sealing material, covered with an alignment film, gets a DC potential (inherently from a power supply on either the gate or source driving circuits, as these are the only electrical connections to the substrate electrodes), and the electrode pattern is only on one side of the display area, on the side described by claim 10. Further, motivated to save manufacturing steps, it would be obvious to make the electrode pattern and the pixel electrodes simultaneously, in which case the electrode pattern would also be reflective. Claims 1-7, 10, 11, and 14 are therefore unpatentable.

4. Claims 1-7, 10, 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kikuchi* in view of *Mitsui*.

Kikuchi discloses a liquid crystal display device comprising a pair of substrates [1, 2], liquid crystal [14], TFTs with inherent gate lines, source lines, and pixel electrodes [see paragraph 24], and an electrode pattern for adsorbing an ionic impurity in the surrounding region of a display pixel area. *Kikuchi* does not explicitly disclose that the pixel electrodes are provided over the gate/source lines via an interlayer film which also underlies the electrode pattern.

However, it would have been obvious to one of ordinary skill in the art to provide the pixel electrodes in this manner, as disclosed in *Mitsui*, for reasons including

providing a large aperture ratio, being able to form asperities in the organic layer easily, etc. Again, making the pixel electrodes and electrode pattern simultaneously would be obvious to save manufacturing steps, among other reasons. Claim 1 is therefore unpatentable, as are claims 2-7, 10, 11, and 14, whose limitations are also taught by this combination.

Allowable Subject Matter

5. Claims 8, 9, 12, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose forming the electrode pattern in segments and supplying each segment individually with an electric signal, so claim 8 is allowable if rewritten appropriately. It also doesn't disclose having the electrode pattern on the sides described by claims 9, 12, or 13, so those claims are also allowable if rewritten appropriately.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Japanese Patent Documents 4-125617, 4-175723, 4-295824, 6-289408, 8-201830, and 10-123526 disclose an electrode pattern for trapping ionic impurities very similar to that of *Kikuchi*.

Japanese Patent Documents 3-118519 and 9-244028 do as well, and also disclose the motion of ionic impurities in the liquid crystal relative to the rubbing directions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 746-4711 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AS

Andrew Schechter
November 2, 2001


TOANTON
PRIMARY EXAMINER